REMARKS

Status of Claims

Claims 8 and 28 have been amended. Claims 9-19 and 22-27 are canceled. Claims 1-8, 20, 21, and 28 are all the claims pending in the application.

Claim 8 has been amended to cancel subpart (d). Subpart (h) of Claim 8 has also been amended to recite "consisting of the group selected from CRE 1, AHK2 and AHK3." Support for this amendment to claim 8 may be found at least at page 25, line 24 to page 26, line 16. Subpart (i) of Claim 8 has also been amended to recite an amino acid having "80% or higher identity to the amino acid sequence before the deletion, substitution or addition of amino acids." Support for this amendment to Claim 8 may be found at least at page 11, lines 1-9 of the specification.

Claim 28 has been amended to replace "polynucleotide of the nucleotide sequence" with "polynucleotide comprising the nucleotide sequence" to even further clarify the claimed invention.

No new matter is added.

Request for Continued Examination and Rule 132 Declarations

The Examiner has acknowledged the Request for Continued Examination under 37 C.F.R. 1.114, and has withdrawn the finality of the previous Office Action.

In addition, the Examiner has acknowledged and entered the Declarations under 37 C.F.R. 1.132 and 1.131 filed July 5, 2007.

Withdrawn Claim Objections/Rejections

Applicants thank the Examiner for withdrawing the rejections under 35 U.S.C. § 102(a) and § 103(a) in light of the Declarations under 37 C.F.R. 1.132 and 1.131 submitted.

Summary of Telephone Calls of August 29, 2007, October 2, 2007 and October 5, 2007

The Examiner contacted Applicants' representative, Tu A. Phan, on August 29, 2007, to state that the Rule 1.131 and 1.132 Declarations filed July 5, 2007 are sufficient.

The Examiner suggested amendments to Claim 8 to help overcome §112, first paragraph and second paragraph issues. In particular, the Examiner suggested the following options in order to place Claim 8 in condition for allowance.

1. Cancellation of parts (d), (h), and (i).
2. Amendment to subparts: (d) to provide recite structural limitations for the transmembrane regions; (h) to provide the particular regions encompassed by the recited "extracellular regions, transmembrane regions and histidine kinase regions"; and (i) to provide the structures involved in the "deletion, substitution, or addition of one or a plurality of amino acids" or remove such recitation. The Examiner suggested that Subpart (d), may be amended to include the transmembrane regions. With regard to subpart (h), the Examiner stated that an amendment reciting, for example, that the extracellular region is "AHK2" will be sufficient. With regard to subpart (i), the Examiner mentioned that Applicants appear to have support for a recitation regarding "80% or higher identity" at page 11, lines 1-9 of the specification.

The Examiner also indicated that Claim 1 was acceptable.

On October 2, 2007, the Examiner contacted Applicants' representative to inquire as to the action Applicants wish to take regarding Claim 8.

On October 5, 2007, Applicants' representative sent a listing of the proposed amendments to Claim 8 to the Examiner. In the proposed amendments to Claim 8, subpart (d) was canceled. Subpart (h) was amended to recite a Markush group "consisting of the group selected from CRE 1, AHK2 and AHK3." Subpart (i) was amended to recite an amino acid having "80% or higher identity."

The Examiner contacted Applicants' representative on October 5, 2007, to state that cancellation of subpart (d) was acceptable and the Markush group recited in subpart (h) was

acceptable. However, with regard to subpart (i), the Examiner stated that although she may have stated that there is support for an amendment reciting "80% or higher identity", the Examiner asserted that she did not mean that the support was sufficient for purposes of 35 U.S.C. 112, first paragraph. The Examiner suggested that "95% or higher" would be acceptable.

Applicants' representatives requested that the Examiner place her reasoning and suggestions to amend Claim 8 on the record and issue a new Office Action.

Response To Claim Rejections Under 35 U.S.C. § 112, First Paragraph

1. Enablement

Claim 8 remains rejected and Claims 1-7 and 28 are also rejected under 35 U.S.C. 112, first paragraph, as lacking enablement commensurate in scope with the claims, for the reasons of record.

The Examiner appears to assert that while Claims 1-8 and 28 are enabling for a method of determining agonist activity to a cytokine receptor comprising SEQ ID NOs: 2, 4, or 6, the specification does not reasonably provide enablement for a method of determining agonist activity to a generic cytokine receptor.

The Examiner asserts that the specification teaches the structure of three cytokinin receptors SEQ ID NOs: 2, 4, and 6 but that the instant claims encompass a genus of cytokinin receptors, including variants and chimeras, whose structures are not taught in the specification.

In particular, the Examiner appears to reject Claim 8 based on subsections (d), (h), and (i).

With regard to subsection (d), the Examiner asserts that subsection (d) does not provide how many transmembrane regions may be in the cytokinin receptor and the specification does not provide any guidance in this regard.

With regard to subsection (i), the Examiner asserts that it encompasses cytokinin receptor extracellular regions, transmembrane regions, and histidine kinase regions all derived from the same cytokinin receptor, and receiver regions which are not derived from the same cytokine receptor. However, the Examiner asserts that the specification does not provide any guidance as to where the receiver regions would come from. Also, subsection (i) encompasses a genus of cytokinin receptors comprising amino acid sequences of (a), (b), (c), (e), (f), or (g) with deletion, substitution, or addition of one or a plurality of amino acids which is not taught by the specification. The Examiner appears to assert that the specification provides little or no guidance to one of ordinary skill in the art to make these deletions, substitutions, or additions without undue experimentation. The Examiner also asserts that subpart (i) is the only subpart of claim 8 that recites a functional limitation, and embodiments that did not retain cytokine receptor activity would fall outside the scope of the claimed invention.

With regard to Claim 28, the Examiner appears to assert Applicants do not teach or provide any guidance regarding "cytokinin receptor genes" aside from the nucleic acids encoding cytokinin receptors as SEQ ID NOs: 1, 3, and 5. Additionally, the Examiner asserts that the phrase "a polynucleotide of the nucleotide sequence" may encompass a fragment as small as five nucleotides up to the full length of the nucleic acid sequence of SEQ ID NOs: 1, 3, and 5. The Examiner asserts that Claim 28 sets forth a definition of "stringent conditions" as 6X SCC at 65°C and washing in the presence of 0.1 X SCC and 0.5% SDS at 68°C for 30 minutes. The Examiner asserts that there does not appear to be a limitation in the claim as to whether overlapping 5-mers, 10-mers, or 20-mers could be used as the "polynucleotide" that hybridizes to the nucleotide sequence selected from the group consisting of SEQ ID NO: 1, 3, or 5.

Claims 2-7 are rejected as depending from a rejected claim.

In response, and solely to advance prosecution of the present application, Applicants have canceled subpart (d) and amended subpart (h) to recite a Markush group "consisting of the group selected from CRE 1, AHK2 and AHK3." As indicated by the Examiner in the telephone call of October 7, 2007, Applicants believe the rejection should be withdrawn in light of these amendments.

With regard to subpart (i), Applicants note that the Board of Patent Appeals and Interferences (BPAI) has stated that "[t]he amount of experimentation to practice the full scope of the claimed invention might have been extensive, but it would have been routine. The techniques necessary to do so were well known to those skilled in the art." *Ex parte Kubin*. Further, "[t]he fact experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation." M.P.E.P. §2164.01. In other words, the specification does not need to contain an example if the invention is disclosed in a manner as to allow one skilled in the art to practice it without undue experimentation. M.P.E.P. §2164. Further, "[t]he scope of enablement varies inversely with the degree of predictability involved, but even in unpredictable arts, a disclosure of every operable species is not required." M.P.E.P. §2164.03. Also, the absence of a working example will not by itself render the invention non-enabled, and the lack of working examples or lack of evidence that the claimed invention works as described should never be the sole reason for rejecting claims based on a lack of enablement. M.P.E.P. §2164.02.

Thus, it would be within common technical practice for one of ordinary skill in the art to perform a homology search or alignment to determine the degree of similarity between the sequences disclosed, and to surmise from the homology search or alignment, the regions of conserved amino acids that are important for function without undue experimentation. One of

ordinary skill in the art would understand and surmise based on common technical knowledge and common sense, e.g., determination of homology in the amino acid sequence based on a BLAST search algorithm, and the disclosure in the specification, how to make and use the claimed amino acids having 80% or higher identity with the sequences of the amino acids before the deletion, substitution, or addition of amino acids.

Further, and solely to advance prosecution of the present application, Applicants have amended claim 28, to replace "polynucleotide of the nucleotide sequence" with "polynucleotide comprising the nucleotide sequence."

Applicants note that methods for obtaining such a polynucleotide are disclosed in the specification from page 15, line 17 to page 17, line 15, and one of ordinary skill in the art would understand and be enabled from the combination of the disclosure in the specification and common technical knowledge to make and use the claimed invention. As stated in PTO's guidelines, in which the specification "expressly defines highly stringent hybridization conditions as: at least about 6X SSC and 1% SDS at 65°C, with a first wash for 10 minutes at about 42°C with about 20% (v/v) formamide in 0.1X SSC, and with a subsequent wash with 0.2 X SSC and 0.1% SDS at 65°C[,]…[i]t is known in the art that hybridization techniques using a known nucleic acid as a probe under highly stringent conditions, such as those set forth in the specification, will identify structurally similar nucleic acids. The specification discloses an actual reduction to practice of the claimed nucleic acid, as well as the complete chemical structure of the claimed nucleic acid (i.e., SEQ ID NO: 1) and method of making the claimed nucleic acid." (See Example 6 of PTO Guidelines).

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, first paragraph, is respectfully requested.

2. Written Description

Claims 1-8, 20, 21, and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The Office Action appears to assert the same reasons discussed under the rejection for lack of enablement. In other words, the rejection appears to be mainly based upon Claim 8, subparts (d), (h), and (i).

Accordingly, the Office Action asserts that in the absence of sufficient recitation of distinguishing characteristics, the specification does not provide adequate written description of the claimed genus of cytokine receptor such that one of skill in the art would recognize that Applicants were in possession of the claimed genus.

The Office Action asserts that Claims 20 and 21 are drawn to generic cytokinin receptors, Claim 1 encompasses all of the limitations of the dependent claims, and Claims 2-7 are rejected as being dependent on a rejected claim.

In response, and as discussed above, subparts (d) and (h) have been amended solely to advance prosecution of the present application.

With regard to subpart (i), Applicants note that the Office Action has misapplied the written description and enablement requirements because the Office Action's rationale is inconsistent with the PTO's guidelines for written description, and the BPAI's interpretation for written description and enablement.

First, the PTO's guidelines for written description disclose that a single species, i.e., a sequence defined by a SEQ ID NO., is representative of the genus having at least 95% identity to the reference sequence "because all members have at least 95% structural identity with the

reference compound and because of the presence of an assay which applicant provided for identifying all of the at least 95% identical variants of [the reference sequence]."

Second, the BPAI has noted that "[t]he written description requirement . . . does not require a description of the complete structure of every species [within] a chemical genus," *Ex parte Bandman*, No. 2004-2319, slip op. at 3 (B.P.A.I. January 6, 2005). In *Ex parte Bandman*, The BPAI reversed the rejection of the claims under both the written description and enablement requirements of 35 U.S.C. § 112, first paragraph, in which the examiner had rejected claims to 95% identical for failing to comply with § 112, first paragraph, because it was asserted by the examiner that the specification provided only a single representative species - the polynucleotide of SEQ ID NO: 2, and failed to disclose any structure-function relationship in this species.

Also as disclosed in the PTO's guidelines, "[t]he procedures for making variants of [a reference sequence] are conventional in the art and an assay is described which will identify other proteins having the claimed catalytic activity. Moreover, procedures for making variants of [the reference sequence] which have 95% identity to [the reference sequence] and retain its activity are conventional in the art."

Although the presently claimed amino acid sequences are recited to have 80% or higher identity, Applicants note that since the sequence of SEQ ID NOs:1, 3, and 5 is known, and the method for making variants of such a reference sequence is considered to be conventional in the art, one of ordinary skill in the art would understand from reading the specification and from common technical knowledge of the relevant art, that Applicants were in possession of the claimed invention at the time the invention was made. Also, Applicants provide a method for determining the antagonist-agonist activity of the cytokinin receptor. (See pages 30-31 of the specification).

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, first paragraph, is respectfully requested.

Response To Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

The Office Action appears to reject claim 28 for two reasons. First, the Office Action asserts that it is unclear which "gene" Applicants are referring to, given that independent claim 1 refers to a genus of cytokinin receptors and cytokinin receptor "gene." The Office Action asserts that as such, the cytokinin receptor "gene" of claim 1 is unclear and confusing. Second, the Office Action asserts that the phrase "a polynucleotide of the nucleotide sequence" in claim 28 is unclear because the metes and bounds of the phrase is not clearly defined, i.e., the phrase may encompass a fragment as small as five nucleotides in length up to the full length of the recited sequence.

In response, Applicants note that the claims prior to the present amendment clearly defines what Applicants consider to be the claimed invention. However, solely to advance prosecution of the present application, Applicants have amended claim 28 to even further clarify the claimed invention by replacing "polynucleotide of the nucleotide sequence" with "polynucleotide comprising the nucleotide sequence" to even further clarify the claimed invention.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, second paragraph, is respectfully requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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